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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/885,362	06/20/2001	Yakov Kogan	CORE-69	4184

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EXAMINER

CHAN, EMILY Y

ART UNIT	PAPER NUMBER
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2829

DATE MAILED: 08/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/885,362

Applicant(s)

KOGAN ET AL

Examiner

emily y chan

Art Unit

2829

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to ^{amendment} communication(s) filed on 30 May 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-50 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22, 32-39 and 50 is/are rejected.
- 7) ☐ Claim(s) 23-31 and 40-49 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claims 1-50 are presented for examination

Claim Rejections - 35 USC § 112

Claims 3-4 and 35-39 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 3-4 and 35-39, the recitations that " at least one of said probe assembly " and "the other of said at least one of said probe assembly" are unclear because there is only one probe assembly (10) mentioned in the specification and shown on Fig 1. The examiner assumes there is only one probe assembly in the claims.

Claim 23 is objected to because of the following informalities: " said second attachment means " should be "second attachment mechanism. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-5,8-10,12-22,32-39 and 50 are rejected under 35 U.S.C. 102(b) as being anticipated by Cadwallader et al' (667).

Art Unit: 2829

With respect to claims 1, 18, 35 and 38-39, Cadwallader et al (667) disclose a method and apparatus for automated semiconductor device probing, comprising:

(1) providing apparatus (figs 4, 6 and 13) for automated semiconductor device probing, the apparatus comprising:

a probe assembly (fig13, 120 and see col. 7, lines 47-50) including an electrical probe (90) for making an electrical connection with a semiconductor device (92) (see Col. 14, lines 38-40), the probe assembly having a first surface (the top surface of 120) and a second surface (bottom surface of 120) in opposition to one another;

a machine vision system (fig.13, and elements 230, 250 and 252) having a camera (230) for locating the semiconductor device (92), the machine vision system having a first contact surface (surface above Fig. 13, 250), adjacent the first surface of the probe assembly (Fig. 13, 120) and having a first attachment mechanism to selectively attach together the probe assembly and the machine vision system (see Col. 14, lines 26-40);

a semiconductor support fixture (figs. 4 and 13, elements 68,74, 100,106,108 and 130) for positioning the semiconductor device (92), the semiconductor support fixture having a second contactor surface (92A) adjacent the second surface of the probe assembly (Fig. 13, 120) and having a second attachment mechanism to selectively attach together the probe assembly and the semiconductor support fixture (col. 8, lines 49-58).

(2) locating the semiconductor device (92) positioned on the a semiconductor support

Art Unit: 2829

Fixture (figs. 4 and 13, elements 68,74, 100,106,108 and 130) with the machine vision System (camera (230)),

(3) guiding the movement of at least one of the probe assembly (120) and the semiconductor support fixture so as to position a contact portion of the semiconductor device (92) and the electrical probe (90) in alignment with one another (Col., 14, lines 30-40); and

(4) moving at least one of the probe assembly (120) and the semiconductor support fixture toward the other one of the at least one of probe assembly (120) and the semiconductor support Fixture so as to position the electrical probe (90) and the contact portion of the Semiconductor device (92) in electrical connection with one another (see Col.7, lines 46-54).

With respect to claims 2-3,12-17, and 36-37, Cadwallader et al' (667) disclose to further comprise at least one of the probe assembly (Fig. 4, 102) and their semiconductor support fixture being selectively movable in plane orthogonal to a line (124) between the probe assembly (120) and the semiconductor support fixture (figs. 4 and 13, elements 68,74, 100,106,108 and 130).

With respect to claim 4, Cadwallader et al' (667) disclose that their machine vision system (TV camera 230) guides the movement of the at least one of the probe assembly (120) and the semiconductor support fixture so as to position a contact portion of the semiconductor device (92) and the electrical probe (90) in alignment with one another. Cadwallader et al' (667) also disclose that their semiconductor support fixture is moved toward the other of the least one of the probe assembly so as to

Art Unit: 2829

position the electrical probe (90) and the contact portion of the semiconductor device (92) in electrical connection with one another (see Col.7, lines 46-54).

With respect to claim 5, Cadwallader et al' (667) disclose two electrical probes (90).

With respect to claim 8, it is inherent that screw thread for the probe assembly would not move when power is off or during a loss of power.

With respect to claim 9, Cadwallader et al' (667) disclose to further comprise an alignment mechanism to align the probe assembly (120) and the machine vision system (230) (col14. lines 28-33).

With respect to claim 10 and 19, Cadwallader et al' (667) disclose to further comprise a motion stage (Fig 6. 130) wherein their semiconductor support fixture is mounted on the motion stage and the motion stage (Fig 6. 130) moves the semiconductor support fixture probe assembly so as to position the electrical probe (90) and the contact portion of the semiconductor device (92) in electrical connection with one another (see Col.8, lines 50-58).

With respect to claim 18, Cadwallader et al' (667) disclose that their machine vision system locates the semiconductor device (92) to guide the movement of the motion stage so as to position the contact portion of the semiconductor device (92) and the electrical probe (90) in alignment with one another (See Fig. 1, computer controls the movement mechanism of the system).

With respect to claims 20, when the electrical probe (90) contacts the portion of the semiconductor device (92), the second surface of the probe assembly contacts the

Art Unit: 2829

second attachment mechanism of the semiconductor support fixture because such contacts are made through intervening parts of the devices.

With respect to claims 21-22, the probing apparatus normally has override operation and final position is beyond first contact.

With respect to claims 32-33, when the electrical probe (90) contacts the semiconductor device (92), an electrical signal is applied by the electrical probe (90) to the contact portion of the semiconductor device (92) and the electrical probe (90) reads an electrical signal back from contact portion of the semiconductor device (92).

With respect to claim 34, when the electrical probe (90) contacts the semiconductor device (92), the semiconductor device (92) is assembled with the electrical probe (90), in electrical contact with one another.

With respect to claim 50, Cadwallader et al' (667) disclose the step of moving the semiconductor support fixture to probe another semiconductor device (90) contained on the semiconductor support fixture (see Col. 4, lines 41-50).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Claim Rejections - 35 USC § 103

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cadwallader et al' (667) as applied to claim 1 above in view of frankeny et al' (637).

Art Unit: 2829

Cadwallader et al'667) do not disclose that their first attachment mechanism is an electromagnet.

Cadwallader et al'(667) also do not disclose that their second attachment mechanism is an electromagnet.

frankeney et al' (637) disclose method and apparatus for integrated circuit device testing and specifically teach an electromagnet (28) used as a first attachment mechanism and an electromagnet (14) used as a second attachment mechanism respectively See Fig. 4).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of the electromagnets (28, 14) used as first and second attachment mechanism of frankeney et al' (637) in Cadwallader et al '(667) 's probing apparatus because by using electromagnets as attachment mechanism between the test substrate and integrated circuit device, rapid and accurate electrical contact can be made for permitting accurate testing as disclosed by frankeney et al (637) (see Col. 4, lines 19-27).

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cadwallader et al (667) as applied to claim 9 above in view of Montoya (987).

Cadwallader et al' (667) also do not disclose that their motion stage (130) moves in a plane orthogonal to the view of the camera of the machine vision system.

Montoya (987) disclose a motor controlled scrub process for probing a semiconductor wafer positioned on a probe chuck 110 and specifically teach a motion stage (Fig. 4, 126) connected to the probe chuck 110 for moving the probe chuck 110 in

Art Unit: 2829

X direction by a X axis motor (130), Y direction by a Y axis motor (128) and Z direction by a Z axis motor 132).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate Montoya' (987) 's teaching of the motion stage which rotates in X, Y, and Z directions in Cadwallader et al' (667) 's probing apparatus to make Cadwallader et al' (667) ' s motion stage (130) moves in a plane (X, Y directions) orthogonal (Z direction) to the view of the camera of the machine vision system because such perpendicular probes provide more stability and control of probe movement as disclose by Montoya'(987) (see Col. 6, lines 66-67).

Allowable Subject Matter

Claims 23-31 and 40-49 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement of reasons for the indication of allowable subject matter. Claims 23 and 40 are indicated allowable because the claimed feature that the first attachment mechanism releases the probe assembly from the machine vision system after the second attachment mechanism attaches together the probe assembly and the semiconductor support fixture recited in claims 23 and that the step of releasing the probe assembly from the machine vision system at the first attachment mechanism after the step of attaching together the probe assembly and the semiconductor support fixture at the second attachment mechanism recited in claim 40

Art Unit: 2829

are not taught or suggested by the prior art. Because claims 24-31 are dependent on claims 23 and 40 respectively, therefore, they would be allowable correspondently.

ARGUMENTS ARE MOOT BECAUSE OF NEW GROUND OF REJECTION

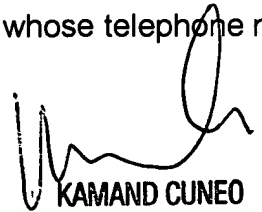
Applicant's arguments with respect to claims 1-50 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to emily y chan whose telephone number is 7033056123. The examiner can normally be reached on 8:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, cuneo kammie can be reached on 7033081233. The fax phone numbers for the organization where this application or proceeding is assigned are 7033085841 for regular communications and 7033085841 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 7022056123.


KAMAND CUNEO
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

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July 21, 2003